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LOGSHEET FOR FIELD CHANGES TO CONTROLLED DOCUMENTS

Change Number	Date	Document Number	Document Title	Section/Page Modified	Description of Change (s)	Resp. Manager Approval	Compliance Approval	ESH&Q Approval	Rad. Eng. Approval	Quality Assurance	Completion of ADM 2.01 Checklist	Completion of of SES/USOD Checklist
1	8/15/97	RF/RMRS 97-036	SAP for Dis Rmvl. Tank of IHSs 170, 174A + 174B	3.0/12	delete GRASS Preference	MRW	NA	NA	[illegible]	[illegible]	yes	yes
				3.2/7	+ add Rad Screens, as	MRW	↓	↓	[illegible]	[illegible]	↓	↓
				3.3/8	necessary	MRW			[illegible]	[illegible]		
				4.0/9	Add cross reference of	MRW			[illegible]	[illegible]		
					lab + RFEDs sample Nos							

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ADMIN RECORD
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described above and shown in Figure 1-1. If concentrations of VOCs in subsurface soil are equal to or greater than the Tier I Subsurface Soil Action Levels listed in Table 2-2, additional boreholes will be spaced approximately 20 feet apart to the north, east, south, and west in the area where the previous soil gas survey grid was on a 40 foot grid. Where the soil gas survey grid was on a 20 foot grid, additional borings will be spaced on a ten foot grid. If concentrations of VOCs are observed in groundwater from each investigative area equal to or greater than the Tier II Groundwater Action Levels per RFCA (DOE, 1996), additional boreholes may be located approximately 100 feet in an upgradient direction to the west to assist in delineating the upgradient source.

Table 3-1
Soil Analytical Parameters

Analysis, Method	Core Sample	QC Samples	Total Samples	Container, Preservative, Holding Time
VOA by EPA SW846/8240	60-120	3-6 duplicates (1 per 20 samples) 3-6 rinsates (1 per 20 samples) 10-15 trip blanks (1 per VOC cooler)	73-131	125 ml wide mouth, Teflon lined glass jar or 1.5 x 6 in brass sleeves with Teflon tape and capped,4°C, 14 days for soils Two 40 ml glass vials, Teflon lined, HCl to pH<2 and 4°C, 14 days for water
Rad Screen, if necessary	60-120	NA	60-120	250 or 500 ml glass jars, NA, 6 months
TCLP-metals	15-30	1-2 duplicates (1 per 20 samples) 1-2 rinsates (1 per 20 samples)	16-32	8 oz wide mouth glass jar, Teflon lined, 4°C, Extract and analyze within 180 days
radionuclides by HPGe, REP 14.01	3 Surface Soil Samples	1 duplicate (1 per 20 samples)	4	250 ml plastic or 250 ml glass wide mouth jars, NA, 6 months

Table 3-2
Water Analytical Parameters

Analysis, Method	Sample	QC Samples	Total Samples	Container, Preservative, Holding Time
VOA Screening	5-10	1-2 duplicates (1 per 20 samples) 1-2 rinsates (1 per 20 samples) 0-5 trip blanks (1 per VOC cooler)	7-17	Two 40 ml glass vials, Teflon lined, HCl to pH<2 and 4°C, 14 days
Rad Screen, if necessary	5-10	NA	5-10	250 ml or 4 oz. Glass jar, NA, 60 days

Eleven borings will be located on volatile chlorinated hydrocarbon soil gas survey anomalies delineated by the 1994 soil gas survey (EG&G, 1995a), (Figure 1-1). Two soil borings will be located over two additional areas of surface oil staining (Figure 1-1) and two soil borings will be located over the two anomalous surface soil analytical results in IHSS 174A. The fifteen initial

soil borings will be radiologically surveyed using the Field Instrument for Detection of Low Energy Radiation (FIDLER) per FO.16, "Field Radiological Measurements". Additional borings will be installed to try to locate the source of groundwater contamination and to further investigate an area or areas of interest if conditions warrant. If locations must be changed to avoid obstructions, or for safety reasons, these changes will be noted in the field logbook.

Soil and groundwater samples will be handled in accordance with FO.13, "Containerization, Preserving, Handling and Shipping of Soil and Water Samples". If conditions are encountered in the field which make the use of a procedure unsafe or inappropriate for the task at hand, the specified procedures may be modified or replaced as long as the modification or replacement procedure is justified and detailed in the field logbook per ADM-05.14, "Use of Field Logbooks and Forms" and the resulting data are adequate to meet the objectives of the project.

3.1 Field Preparation

Before data collection begins, each borehole location will be established with tape and compass as necessary, using the previous soil gas survey points as reference. Locations will be marked with reference stakes or flags with the unique number for that location. Borehole location numbers and sample numbers will be obtained from Rocky Flats Environmental Database System (RFEDS) and correlated with sample analyses for that location per FO.14, Field Data Management". On the basis of the FIDLER survey results per FO.16, "Field Radiological Measurements" from the 15 initial boring locations, the three highest FIDLER readings will be selected for surface soil samples for radionuclide analysis per GT.08, "Surface Soil Sampling", Section 4.3 - Grab Sampling. Surface soil sampling will be performed using disposable sampling equipment, such as plastic scoops.

3.2 Drilling and Soil Sampling Methodology

Boreholes will be advanced to a depth of one to two feet into groundwater or a sufficient depth to collect a groundwater sample. This depth is expected not to exceed 20 feet, however, no borehole will exceed a depth of 30 feet, the limit of expected groundwater. If refusal occurs prior to reaching groundwater, up to two offsets will be tried. If there is no success in penetrating below a given depth, the boring will be terminated at that location. Geoprobe drilling operations will be conducted per GT.39, "Push Subsurface Soil Sample", if utilized. Hollow-stem auger drilling is the preferred drilling methodology due to the thickness of the Rocky Flats Alluvium and will be conducted per GT.02, "Drilling and Sampling Using Hollow-Stem Auger Techniques". Subsurface soil samples will be collected at five foot intervals, or where visible staining or other indications of VOC contamination are present. Two to five foot core runs will be pushed using a hydraulic sampling tool (Geoprobe) or using a split-spoon sampler with a hollow-stem auger, logged in the field, and field screened for VOCs. A Photoionization Detector (PID) or Flame Ionization Detector (FID) will be used in the field to screen the collected core to assist in identifying the intervals where VOCs may be present per FO.15, "Photoionization Detectors and Flame Ionization Detectors". Core will be visually logged by the field geologist per GT.01, "Logging Alluvial and Bedrock Material". Soil cores recovered via hollow-stem auger will not be sieved per Section 5.1.2.1 or photographed per Section 6.2.4. Soil samples will be collected from the core for analyses as described above and in Table 3-1. Radiological screening samples will be composited from the 0.5 foot interval above the VOC sample interval to radiologically screen the samples per FO.18, "Environmental Sample Radioactivity Content Screening", for off site laboratory shipment and analysis, if necessary.

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Soil cuttings generated by hollow-stem auger drilling will be monitored and containerized per FO.8, "Monitoring and Containerizing Drilling Fluids and Cuttings" and managed per FO.10, "Receiving, Marking , and Labeling Environmental Materials Containers", FO.23, "Management of Soil and Sediment investigative Materials (IDM), and FO.29, "Disposition of Soil and Sediment Investigation-Derived Materials. The RMRS waste generators will be responsible for insuring that the waste containers are properly filled, labeled, and have the waste residue traveler documentation in accordance with plant procedures (1-C88-WP1027-NONRAD, "Non-Radioactive Waste Packaging", 1-C80-WO-1102-WRT, "Waste/Residue Traveler Instructions", and 1-I34-WO-1103-NRWOL, Non-Routine Waste Origination Log Instructions). Particulate dust will be monitored during drilling operations per Procedure FO.1, "Air Monitoring and Particulate Control".

Equipment will be decontaminated in the field per FO.3, "Field Decontamination Procedures" and FO.7, Handling of Decontaminated Water and Waste Water". Prior to release from RFETS, equipment will be decontaminated at the Main Decontamination Facility per FO.12, "Decontamination Facility Operations" and radiologically surveyed per HSP 18.10, "Radioactive Material Transfer and Unrestricted Release of Property and Waste" as necessary. Personal protective equipment (PPE) will be handled in accordance with FO.6, "Handling of Personal Protective Equipment".

3.3 Groundwater Sampling Methodology

Groundwater is expected to be encountered between 10 and 20 feet below ground surface in the investigation areas. Groundwater samples will be collected either through the hollow-stem auger or in the open borehole with a bailer from the first boring from each investigative area with sufficient groundwater. Groundwater samples will be collected for VOC analysis per GW.6, "Groundwater Sampling". Specifically, Section 5.8.1 - Sample Collection, for radiation screening (also per FO.18, "Environmental Sample Radioactivity Content Screening") and VOCs; Section 5.8.1.1 - Groundwater Sampling Using a Bailer; Section 5.8.4.1- Duplicates; Sections 5.8.4.4 - Equipment Rinses and 5.8.4.4.1 - Bailed Wells; Section 5.9 - Sample Handling And Control; and Section 6.0 - Documentation, using Form GW.6B - Groundwater Sample Collection Log. VOC analyses and radiological screens, if necessary, will be collected per the methods specified in Table 3-2 and procedure FO.18, "Environmental Sample Radioactivity Content Screening".

3.4 Abandonment of Borehole Locations

After completion of sampling at each location, boreholes will be abandoned in accordance with procedure GT.05, "Plugging and Abandonment of Boreholes", except that geoprobe boreholes will be backfilled with powdered or granular bentonite from ground surface and not tremmied. Each location will be identified with the unique location number assigned, with indelible ink either on a wooden lathe or pin flag.

Boring locations will be surveyed for location and elevation using GPS receivers operated in accordance with the equipment manuals (Ashtech 1993), or with equivalent equipment.

4.0 DATA MANAGEMENT AND DOCUMENTATION

The location and depth interval of all subsurface materials, either solid or liquid, recovered during the course of this investigation will be recorded in the field log book. RFEDS location codes will be cross indexed to appropriate sample location designations in the field logbook.

Soil core and other material that is subject to only field screening will be identified by the sample location code and depth interval where the sample is obtained. Samples undergoing VOC or radioisotope analysis will have RFEDS sample numbers applied to the container labels in the field. The numbers will be applied sequentially as the samples are collected and the COC form is prepared. A block of sample numbers will be obtained from the RFEDS. A block of location codes and sample numbers will be of sufficient size to include the entire number of possible locations and samples scheduled for analysis and an additional twenty percent for potential additional locations and samples. The RFEDS sample numbers will be cross referenced with the KH-Analytical Services Division (ASD) sample numbers. Data record storage will be performed by KH-ASD.

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4.1 Project Completion

The results will be compiled into a brief report and map. The location and analytical data will be entered into and stored in the RFEDS. At the end of the project, all records and field documentation will be turned over to the records center.

4.2 Quality Assurance

Analytical data collected in support of this investigation will be evaluated using the guidance established by Procedure 2-G32-ER-ADM-08.02, "Evaluation of ERM Data for Usability in Final Reports". This procedure establishes the guidelines for evaluating analytical data with respect to precision, accuracy, representativeness, completeness, and comparability (PARCC) parameters. For precision, typically the relative percent difference between samples and duplicates is less than or equal to 40 percent for soil and 30 percent for groundwater. Accuracy of the laboratories will be obtained by using laboratories as directed by the APO. In addition, 25 percent of the soil analytical results will be validated by an independent third party. Comparability will be evaluated by using standardized methods for the collection and analysis of samples. Completeness will be evaluated by comparing the proposed sampling program to the field program as completed. A value of 90 percent will be used to assess completeness for the project. Sampling activities will be conducted in accordance with the RMRS Quality Assurance Program Plan (RMRS, 1995). Field decisions will be based on "Form 1s" received directly from the laboratory. This will allow for the timely use of analytical results. Analytical laboratories supporting this investigation have all passed regular laboratory audits by the KH-ASD.

5.0 PROJECT ORGANIZATION

The project organization chart is presented in Figure 5-1. The project team is responsible for management and coordination of resources dedicated to the project. The Project Manager is responsible for ensuring that all data are collected, verified, transmitted and stored in a manner consistent with relevant operating procedures. Other organizations assisting with the implementation of this project are: Analytical Services with Kaiser-Hill APO, RMRS Health and Safety, RMRS Quality Assurance, the drilling subcontractor, and health and safety specialist support.